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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,258	07/21/2003	Jeffery T. Brewster	0403-4104	7320

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EXAMINER


LAM, THANH

ART UNIT PAPER NUMBER

2834

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/624,258	Applicant(s) BREWSTER ET AL. 	
	Examiner Thanh Lam	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 6/6/05.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-15 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,4-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishio et al. (US 5,006,745).

Regarding claim 1, Nishio et al. disclose a permanent magnet brushless motor comprising: a wound assembly comprising permeable laminations with slots; an insulated copper wire wound within the slots to provide electrical phases (u,v,w); a field assembly comprising a permeable structure and at least 20 magnet poles (see table 1, n=5) arranged thereon; wherein the wound assembly and the field assembly are arranged to produce a motive force when the electrical phases of the wound assembly

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are excited; and wherein the wound assembly has less slots (N) than the field assembly has poles (p) to increase torque efficiency (see table 1).

Regarding claim 4, Nishio et al. disclose the wound assembly rotates and the field assembly remains still.

Regarding claim 5, Nishio et al. disclose permanent magnet brushless motor comprising: a wound assembly with slots formed therein; an insulated copper wire wound within the slots to provide electrical phases; a field assembly comprising a permeable structure and permanent magnet poles arranged thereon; wherein the wound assembly and the field assembly are arranged to produce a motive force when the electrical phases of the wound assembly are excited; and wherein the ratio of slots to poles is less than 0.75 (see table 2,  $P/N=.66$ ).

Regarding claim 6, Nishio et al. disclose permanent magnet brushless motor comprising: a wound assembly with slots formed therein; an insulated copper wire wound within the slots to provide electrical phases; a field assembly comprising a permeable structure and permanent magnet poles arranged thereon; wherein the wound assembly and the field assembly are arranged to produce a motive force when the electrical phases of the wound assembly are excited; and wherein the ratio of slots to poles is greater than .0.75 but less than 1.0 (see table 5,).

Regarding claim 7, Nishio et al. disclose the ratio of slots to poles is less than 0.90.

Regarding claim 8, Nishio et al. disclose a slow speed/high torque permanent magnet brushless servo motor comprising: a wound assembly with slots formed therein; insulated copper wire wound within the slots to provide electrical phases, an a field assembly comprising a permeable structure and at least 20 permanent magnet poles arranged thereon; wherein the wound assembly and the field assembly are arranged to produce a motive force when the electrical phases of the wound assembly are excited; and wherein the ratio of slots to poles is greater than 0.5 but less than 1.0 to increase torque efficiency (see table 1, n=5).

Regarding claim 9, Nishio et al. disclose the slot pole ratio is chosen to create a balanced winding.

Regarding claim 10, Nishio et al. disclose the slot pole ratio is chosen for optimum cogging performance.

Regarding claim 11, Nishio et al. disclose the slot/pole ratio is chosen to enable efficient machine winding of the wound assembly.

Regarding claim 12, Nishio et al. disclose the slot/pole ratio is chosen to have a low total harmonic distortion.

Regarding claim 13, Nishio et al. disclose the slot pole ratio is chosen to create a balanced winding, with optimum cogging performance, and efficient machine winding of the wound assembly.

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Regarding claim 13, Nishio et al. disclose not all of the slots are wound with insulated copper wire.

Regarding claim 13, Nishio et al. disclose torque efficiency is increased by increasing torque density based on a volume of magnetic materials.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 5, rejected under 35 U.S.C. 102(e) as being anticipated by Nakano (us 20040155537).

Regarding claim 5, Nakano et al. disclose permanent magnet brushless motor comprising: a wound assembly with slots formed therein; an insulated copper wire wound within the slots to provide electrical phases; a field assembly comprising a permeable structure and permanent magnet poles arranged thereon; wherein the wound assembly and the field assembly are arranged to produce a motive force when the electrical phases of the wound assembly are excited; and wherein the ratio of slots to poles is less than 0.75 (see fig. 9.  $48/2 = 24$  (single pole);  $N = 144$ , than the ratio  $= 24/144 = .166$  ).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio et al.

Nishio et al. disclose all the aspect of the claimed invention except for the motor has slots 30 or 36 and 38 or 48 poles respectively with claim 2 and 3. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the number of slots and poles accordingly as stated above in order to provide

the motor to operate with less noise, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Lam whose telephone number is (571) 272-2026. The examiner can normally be reached on t-f 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E Schuberg can be reached on (571) 272-2044. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thanh Lam  
Primary Examiner  
Art Unit 2834

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